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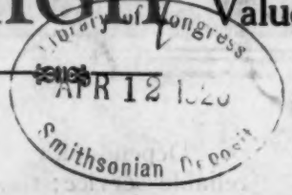

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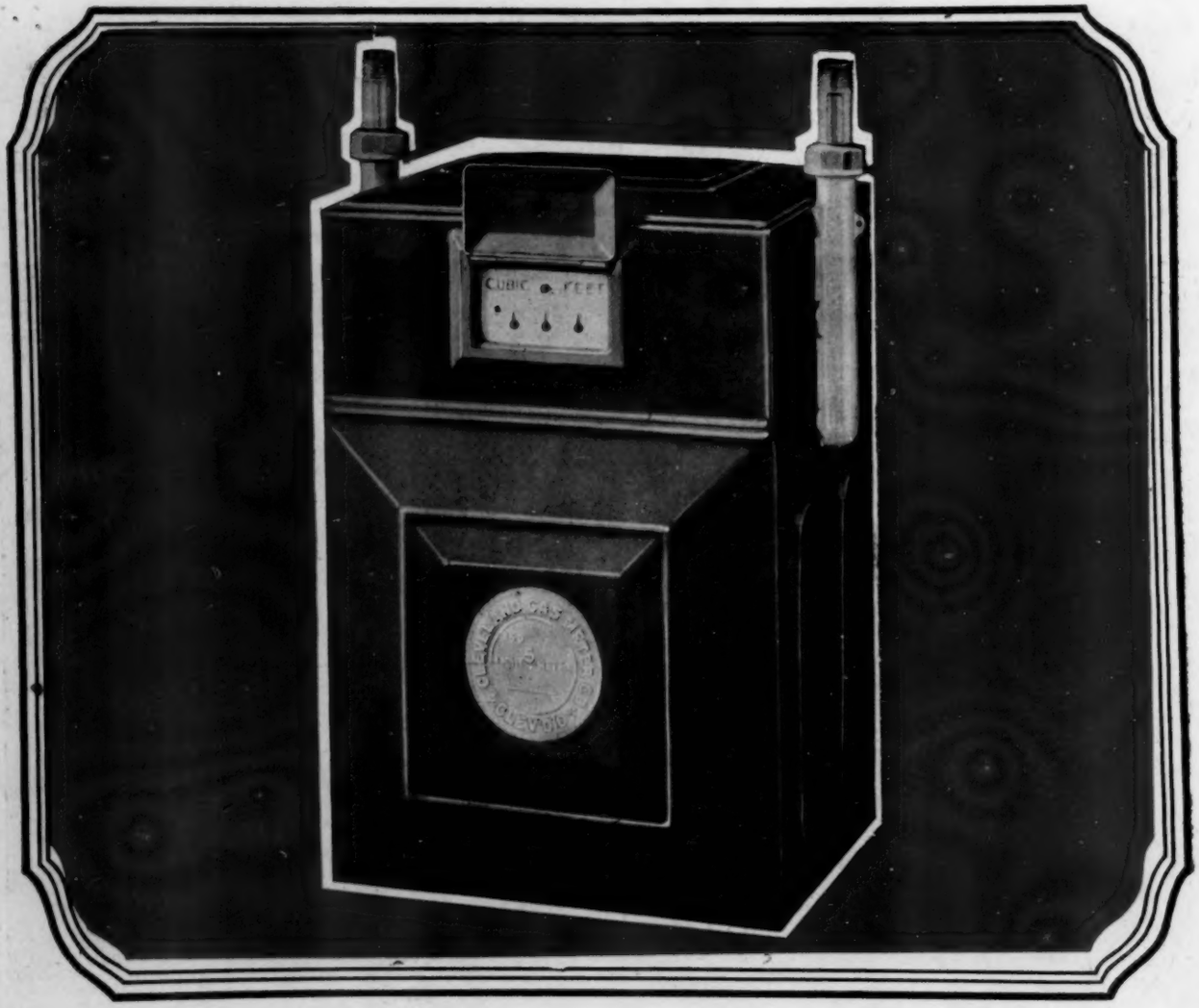
Index to Contents, Page 4 Advertising Index, Page 31



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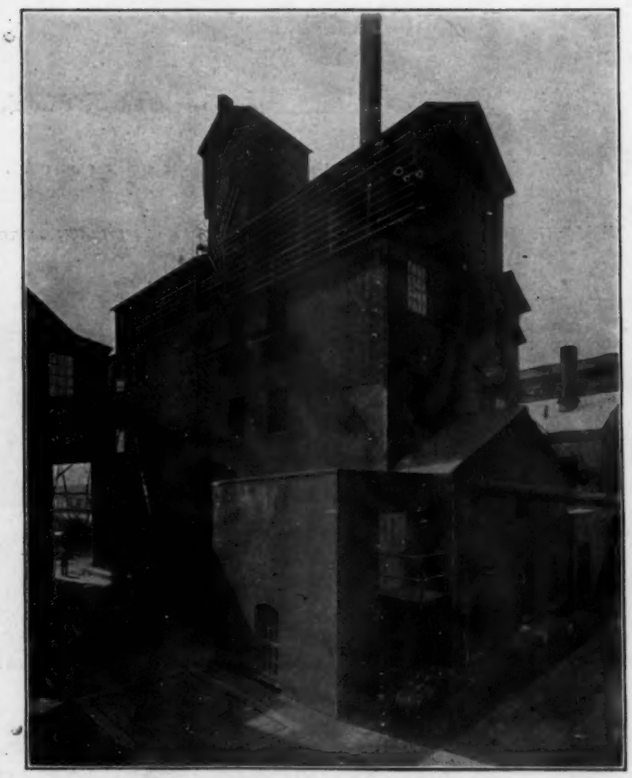

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Contents of This Issue

Gas Manufacture for Peak Load Conditions—E. L. Hall..... 305
Warm Air Furnace Heating—A. W. Lordahl..... 310
Gas at a Food Show—J. W. Piatt..... 312
Statistics—Rudolph Jenny..... 313
A Gas Furnace Display—C. W. Geiger..... 315
Progress in Gas Technology..... 316
As The Journal Views It..... 317
Government Ownership of Utilities
Problems of the Small Gas Plant
Market Condition Remains Satisfactory—L. W. Alwyn-Schmidt. 318
Industrial Gas Lesson No. 114..... 319
Ideas for the Man Who Sells—William H. Matlack..... 321
News of the Gas Industry..... 323

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Gas Manufacture for Peak Load Conditions

A careful analysis of existing practice—oil gas the solution

E. L. Hall

General Superintendent, Portland Gas & Coke Co., Portland, Oregon

In the following article, Mr. Hall reviews the factors that influence the choice of gas making materials and processes for meeting peak load conditions. He carefully describes existing processes and studies them from six basic standpoints and comes to the conclusion that the solution of the problem is to be found in oil gas.

This study is purely theoretical in character and the Editor joins with Mr. Hall in asking our readers for their criticisms. The object of this study, of which the present article is the first installment (the concluding installment wil be found in the April 17th issue of the American Gas Journal), is to ascertain the weight that can be given to the factors under discussion.

The concluding installment of the article will be concerned with the application of these considerations to a typical situation.—Editor.

THE changing character of the gas business during recent years has brought new problems to the production engineer.

The great growth of househeating has created peak loads of great intensity and relatively short duration to such an extent as to dominate all other considerations as affecting a choice of gas making materials and processes.

This paper is an effort to emphasize certain factors which should affect such a choice but which do not seem, in the writer's opinion, sufficiently to have been taken into consideration in the recent papers and discussions on the subject.

Factors Summarized

These factors may be briefly enumerated as follows:

Investment as applied to peak loads and base loads.

Heating value of the gas as affecting the total investment—principally the distribution investment.

Specific gravity of the gas as affecting the total investment, mainly that of distribution plant.

It is sometimes unfortunately the case that in a choice of gas making materials, the operating cost of gas in the holder is the principal, if not the only consideration. It is also unfortunately assumed quite frequently that whatever the gas making method employed it will automatically involve discarding our present gas making methods and apparatus.

It becomes advisable, therefore, to study our manufacturing methods and plant, relative to certain load factors brought about by the changing character of our industry. In choosing a new or in conserving an old manufacturing method, the following points may be considered as basically the most important:

Essential Points to Be Considered

1st. The heating value must be constant, but may be of any quality that will give service to the consumer.

2nd. Everything else being equal, the heating value should be as high as possible in order to reduce distribution costs.

3rd. The specific gravity must also remain constant and from the standpoint of service to the consumer, uniform specific gravity is, if possible, of even more importance than constant heating value.

4th. Everything else being equal, the specific gravity should be as low as possible in order to reduce distribution costs.

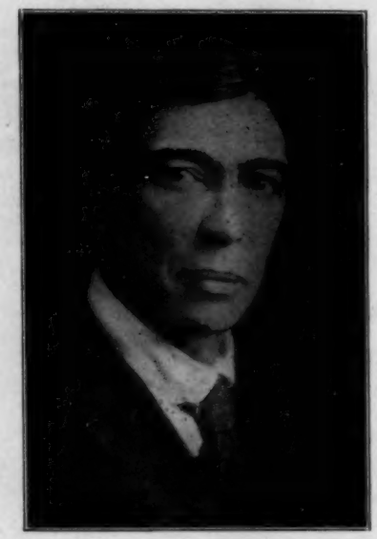
5th. A choice of gas-making materials cannot be fairly arrived at without due consideration of the value of by-products and the available market for the same.

6th. A combination of manufacturing methods is indicated for most localities as tending best to satisfy the above rule.

It is probably not necessary to enlarge to any extent upon the statement that uniform quality is desirable, since it will readily be conceded that fluctuations in heating value will be accompanied by poor service to the consumer, besides indicating erratic manufacturing conditions and thereby a departure from the optimum manufacturing method.

Heating Value of the Gas

In view of past controversies with reference to whether the consumer is equally well served by gas of low heating value as compared to gas of high heating value per unit of thermal value, it is somewhat venturesome again to raise this issue. It would seem, however, that there is fully as much evidence in favor of high B. t. u. gas as there is of low B. t. u. gas for ordinary purposes. Attention is called to the latest bulletin of the Bureau of Standards on the subject entitled, "Relation between Heating Value of Gas and its Usefulness to the Consumer," Bulletin 290, by E. R. Weaver, in which the following summarized statement is made, "The volume of gas consumed by a community under conditions otherwise reasonably constant is substantially and inversely proportional to the heating value or what amounts to the same thing, the amount of heat used by a community is not affected materially by the heating value of the heat supplied." For the purposes of this paper, this statement may be accepted as true, since the character of the load is changing very fast toward that of a heating load principally for heating buildings. I believe it is generally conceded by utilization, engineers that so far as house heating is concerned, the value of the gas is in direct proportion to its heating content.



E. L. Hall

The choice of a heating standard should be based upon the delivered cost per therm to the consumer. It is, of course, assumed that rates will be adjusted up or down in accordance with the B. t. u. value of the gas and any other course is greatly to be deplored as handicapping the development of scientific methods. The tendency in the past, unfortunately, has been for the utilities generally to seek lower calorific standards and for the regulatory bodies to oppose such standards, based largely on the assumption that higher rates were indirectly sought for.

It is quite possible that, when all the elements are properly considered, in some situations a higher thermal value would result in lower cost per therm to the consumer, and with properly adjusted rates, in equal profit to the utility.

Low Heating Value and Complete Gasification

The only justification for a low heating value is that of a more complete utilization of the raw materials, such as in the case of complete gasification. Such advantages, however, must be balanced against the disadvantages among which may be mentioned:

The greater bulk of the gas for the same heat output which results in much greater capital investment all along the line, both in gas works and distribution plant and somewhat in the utilization by the consumer. This greater bulk is evidenced by the specific gravity of the gas, and increases in the plant investment on the following apparatus.

Gas generators and accessory apparatus are increased to some extent, and purification and condensing apparatus, station metering, works holder capacity, distribution holders, works connections, transmission and pumping mains, distribution mains, consumers' services, consumers' meters and house-piping are increased in direct ratio to the increased bulk.

Generating Equipment

With reference to generating equipment, the above statement is to be interpreted as applying to the same method of manufacture and not in comparing one method against the other. That is to say, in making carburetted water gas, a greater thermal output would be obtained with higher heating value than with lower heating value owing to the oil gas made. In the case of coke oven and coal gas plants, a greater output of therms would result with lower heating value, owing to the water gas made by steaming. In complete gasification, assuming 100% gasification in either case, there would be no difference unless, as in the case of water gas plant, carburetion was resorted to. With oil gas generating apparatus, there is not a great deal of difference in favor of either high or low B. t. u's.

In the case of condensing and scrubbing apparatus, the addition of bulk to the gas would largely determine the size of apparatus for equal scrubbing and condensing efficiency, as the efficiency of such apparatus depends largely on time of contact and only to a lesser degree on the composition of the gas and its specific heat. There is, however, one

exception, and that is that the gases of higher heating value generally contain a larger proportion of tarry constituents with corresponding condensing and scrubbing difficulties.

Purification

With reference to purification, the aforegoing remarks largely apply. That is to say, time of contact is principally the determining element. On the other hand, it is generally true that gases of high thermal value are accompanied by larger amounts of sulphur that must be removed per unit of volume.

As far as the manufacturing plant is concerned, there does not seem to be any very serious objections to the low B. t. u. gas, as there are compensating advantages in relative freedom from tar and sulphur, except with such works apparatus as relief holder, works connections, station meters, works storage holders. But, on the other hand, the entire distribution capacity is substantially reduced with the gain in bulk. Taken as a whole, therefore, everything else being equal including specific gravity, production, transmission and distribution investment is increased inversely with the heating value in very nearly direct ratio. The statements in the above two paragraphs apply, of course, more particularly to comparisons with various types of gas rather than to one type of gas of varying quality, owing to the fact that specific gravity changes tend to counteract the advantages of higher heating value gases.

Specific Gravity An Important Factor

The importance of specific gravity as a factor in rendering proper service to consumers has only been thoroughly appreciated of late years. It is now universally conceded that notwithstanding the maintenance of very uniform heating value fluctuations in specific gravity will produce such marked effects upon the regulation of burners as to result in extremely poor service. This is the case when a lower specific gravity gas, such as coal gas, is mixed with high specific gravity gas, such as water gas, in constantly varying proportions according to the manner in which the gas plant is operated. It is not necessary to dwell further on this statement, since it is well known and universally conceded.

Advantages of Low Specific Gravity

The advantages of a low specific gravity gas proceed from the fact that the flow of gas in pipes is inversely proportional to the square root of the specific gravity. This would mean that when a gas of high specific gravity is supplied, a correspondingly larger distribution investment is required. This statement applies not only to the gas mains, but also to the services, meters and consumers' piping. The following table is given, indicating the capacity ratios of distribution equipment for gases of various specific gravity, oil gas of .34 being given the value of unity:

Specific Gravity	Capacity Ratio
.34	1.00
.40	.92
.50	.82
.60	.75
.70	.69
.80	.65
.90	.61
1.00	.58

Explanation of Table

It will be observed that the capacity of a distribution system in which water gas of .70 specific gravity would be substituted for oil gas of .34 specific gravity would be reduced in the capacity ratio from 1.00 to .69, or a loss of 31%. Theoretically, in a distribution plant costing $5,500,000 as in the case of Portland, Oregon, this investment would have to be increased to $7,360,000 where it has been figured that only 75% of the investment would have to be increased, 25% being already adequate to meet any changes in specific gravity, or a difference of $1,860,000. Figuring this additional investment at 12% for interest, depreciation and taxes, there would be an annual burden of $223,200 to be assessed against the high gravity gas. On the assumption of annual sales of 5,000,000,000 feet of gas, the higher specific gravity gas would have to be sold for something over 4% more than the gas of lower specific gravity. Putting the matter another way, we find that the saving in the distribution investment for the lower specific gravity gas would take care of just about one-half of the entire gas works investment for an annual output of five billion feet of either water gas or oil gas.

The By-Products Problem

It cannot be said that there is anything particularly new in the thought that by-products should be conserved and disposed of to the best advantage. In fact, the statement is almost self-evident and is successfuly exemplified in a number of industries. It would seem that the gas industry has looked upon itself too much as a purveyor of public service and not enough in the light of a manufacturing plant in which the raw fuels are processed to their greatest economic usefulness. In neglecting the opportunities afforded by the development of many useful by-products, the gas industry stultifies itself, and, if this course is pursued, the industry will see the processing of raw fuels pass into other hands. This has been exemplified in the construction of coke ovens in the steel industries, where the gas itself has become the by-product and the gas companies are placed in the position of a purchaser of gas rather than a manufacturer.

This, to some degree, is also exemplified in a smaller way by the processing of oil which is today done almost exclusively in the oil refineries, although it would seem that economical cracking of oil might be accomplished in the gas plants with considerably higher thermal and economic yields. In considering the choice of raw material for gas

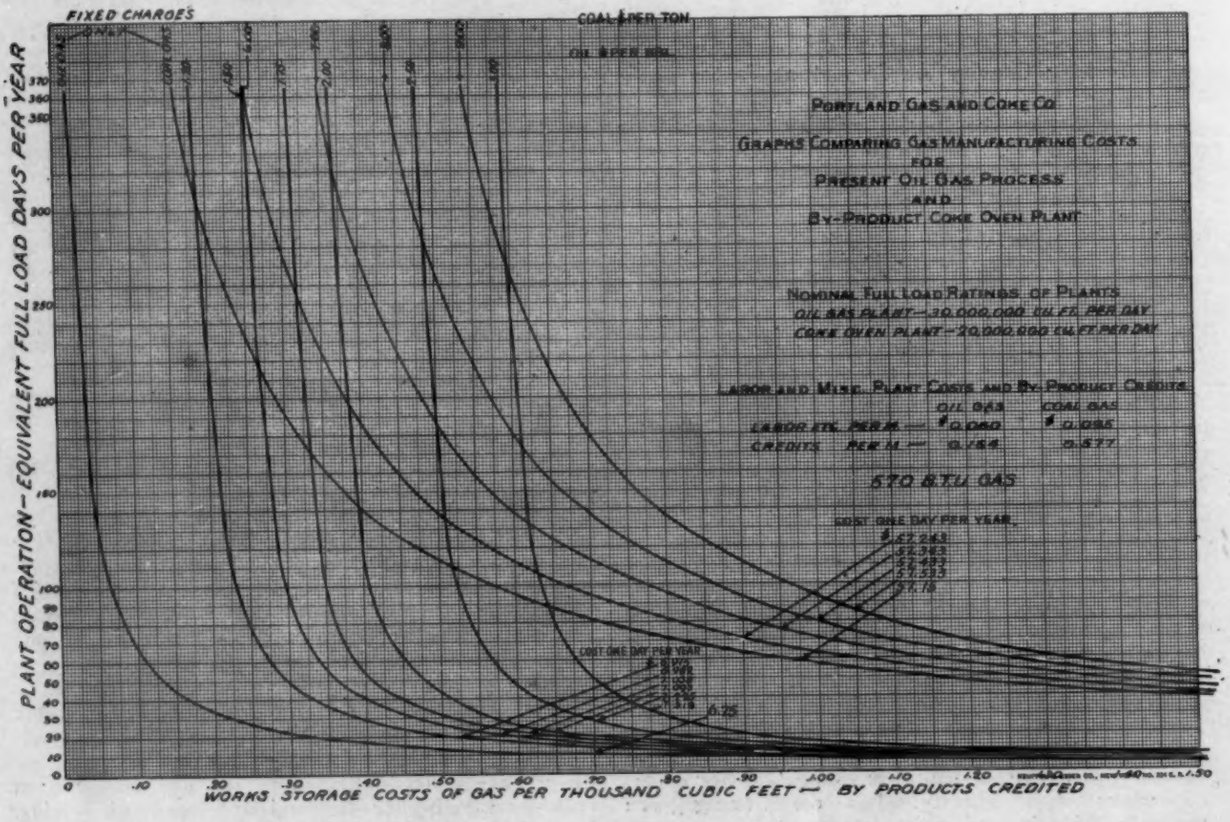
making purposes, it is not sufficient merely to figure the yields and profits from such by-products, but a very careful survey ot the markets is necessary to determine whether the entire quantity of by-products can be disposed of at a fair price. This is particularly true of coal gas and coke oven plants, bearing in mind the disposal of the by-product coke. The availability of other fuels in the local market and the number of industries capable of using coke must be given a great deal of consideration. For instance, it would be folly to attempt to dispose of the entire quantity of coke in a town well supplied with mill waste, convenient also to coal mines, and having relatively few metallurgical industries. Climatic conditions must also be considered in estimating the quantity of fuel that might be consumed for heating residences and commercial institutions.

Getting Away From By-Products

An effort has been made by some engineers to get away entirely from by-products, so far without much success, since the effort is generally accompanied by very significant disadvantages. The effort completely to gasify coal either in complete gasification apparatus or in a combination coal and water gas plant inevitably produces gas of very low heating value and high specific gravity, the disadvantages of which have been previously pointed out. In the case of oil gas, complete gasification has not been successful in eliminating the by-product lampblack much beyond 50% of the maximum. It has resulted in such lampblack being recovered and consumed under wasteful conditions. There is much to be said in favor of boldly facing the by-product situation and converting it into an asset instead of a liability. The thought is also ventured that by properly processing fuels for their greatest economic value, a prior claim on such fuels will be established for the gas industry when a scarcity of fuels, such as oil, results in an allocation to favored industries.

The Method to Use

When the scarcity of certain fuels and the resulting high prices have made a change to other manufacturing methods seem desirable, it is frequently assumed that the present method will be abandoned entirely in favor of a new method. Not only is such a viewpoint unjustifiable by reason of the investment existing in the present process, but it is likewise seldom the case that any one process completely satisfies all of the conditions of load factors according to which the gas is sold. It is frequently possible by a judicious combination of manufacturing methods to distribute gas to the consumer at substantially lower cost than would be the case with one process alone. There are, however, substantial difficulties in the matter of blending gases of various quality, due to their varying heat content and specific gravity. Combinations, such as coal gas and water gas have inherent difficulties of this kind,


FIXED CHARGES
COAL PER TON
OIL PER BBL.
PORTLAND GAS AND COKE CO.
GRAPHS COMPARING GAS MANUFACTURING COSTS FOR PRESENT OIL GAS PROCESS AND BY-PRODUCT COKE OVEN PLANT
NOMINAL FULL LOAD RATINGS OF PLANTS
OIL GAS PLANT—30,000,000 CU. FT. PER DAY
COKE OVEN PLANT—20,000,000 CU. FT. PER DAY
LABOR AND MISC. PLANT COSTS AND BY-PRODUCT CREDITS
OIL GAS
COAL GAS
570 B.T.U. GAS
COST ONE DAY PER YEAR
PLANT OPERATION—EQUIVALENT FULL LOAD DAYS PER YEAR
WORKS STORAGE COSTS OF GAS PER THOUSAND CUBIC FEET — BY PRODUCTS CREDITED

Cost of Oil Gas and Coal Gas for Various Prices of Oil and Coal

almost impossible to overcome without some sacrifice in operating cost and plant investment. To illustrate: Under the usual conditions of heavy winter peak loads, which are becoming aggravated by the sale of gas for househeating purposes, it would be very advantageous to take care of the peak loads with a water gas plant, and at the same time dispose of surplus coke derived from coal gas plant or coke oven plant operated as a base load.

The coal gas having a low specific gravity would be blended at the peak loads with water gas at high specific gravity, thereby giving rise to poor service. In order to distribute gas of reasonably constant quality, it would be necessary to resort to such expedients as increasing the specific gravity of the coal gas by an admixture of producer gas as is set forth in a paper recently read by J. A. Perry before the American Gas Association.

The Investment Factor

Generally speaking, the considerations, affecting the choice of plant to take care of peak load conditions, are mainly those of the investment factor. Certain processes, such as water gas, carburetted water gas, oil gas and plants for complete gasification, are well adapted, owing to the low plant costs, for taking care of peak loads of relatively short duration. Coal gas plants and coke oven apparatus, owing to the high initial investment, are almost prohibitive for peak load conditions. On the other hand, where good gas-making coals are available, coal gas apparatus or coke oven plants in spite of the high investment are able to put gas in the holder, when operated for the major part of the year, at substantially lower figures than water gas, carburetted water gas, or even oil gas and complete gasification plants.

This last statement is becoming more and more realized with the impending shortage and higher prices of oil. If one eliminates the oil from consideration, it will be found that water gas and producer gas and complete gasification plants are badly handicapped by the high specific gravity and low heating value of the gas produced by such processes, while on the other hand, coal gas and coke oven plants produce gas of high heating value and low specific gravity, making them very desirable for distributing purposes. The problem would be relatively simple, if the sales of gas were uniform throughout the year. In this case, coal gas and coke oven plants would solve the problem for a great many localities.

Plants for Short Peak Load Duration

Owing to the development of tremendous peak loads in connection with the househeating business, it is almost impossible to consider plants, having such heavy investment characteristics, for handling the peak loads of relatively short duration. The problem, then, is to find a process having the necessary desirable characteristics of low investment costs and high heating value gas and one of low specific gravity. To the writer's knowledge, there is only one such process and that is oil gas. There is, of course, one great stumbling block in the use of oil gas and that is the possibility of the depletion of our oil resources with accompanying prohibitive prices for oil. However, a more careful examination of the situation disposes almost completely of this consideration, the point being the almost overwhelming influence of the investment factor in connection with peak load business.

This contention will be the more appreciated by an illustration. Comparing, for instance, oil gas plant with coke oven plant for handling peak loads, assuming the cost of a coke oven plant at $4,000,000 for the generating apparatus only, at a capacity of ten million cubic feet per day, this gives an investment cost of $400 per 1,000 cubic feet of maximum day. With interest, taxes and depreciation at 15%, this gives $60 as the investment cost for 1,000 feet of gas produced in a maximum day. In other words, this gas would cost $60 per 1,000 feet if the peak load condition were to last only one day. If it should last for ten days, the cost per 1,000 for investment would be $6.

Further Figures

With the oil gas plant using construction figures of $450,000 for ten million plant, the construction cost would be $45 per 1,000 feet per maximum day or $6.75 per 1,000 feet of maximum day. That is to say, the cost of 1,000 feet of gas, were the plant to operate only one day in the year, would be $6.75 per 1,000 or for ten days' operation, 68c. The saving in investment charges for oil gas as compared to coal gas for ten day operating period would be $5.32 per 1,000. If we assume that oil gas could be put in the holder for 35c at present prices of oil, it will readily be appreciated that we could afford to pay fifteen times the present prices of oil before the peak loads could be handled at equal cost with coal gas or coke oven plant apparatus. The same argument can be applied with equal success to demonstrate the advantage that water gas plant has over coal gas or coke oven plant owing to the lower investment. Water gas for peak loads with coal gas for base loads has the further advantage of assisting very materially in disposing of surplus coke. On the other hand, where coke can be otherwise disposed of to advantage, water gas plant cannot compete with oil gas plant, on account of the double disadvantage of low B. t. u. and high specific gravity, which result in two very serious conditions:

(a) Large decrease in distribution capacity at the very peak load.

(b) Poor service, due to blending gases of differing specific gravity.

Meeting the Objections

The second objection can only be met by manufacturing a uniform specific gravity gas by some such expedient as that proposed by J. A. Perry, of introducing producer gas into the coal gas, thereby producing a high specific gravity coal and producer gas similar to water gas. This solution, however, still further accentuates the loss in distribution

capacity. Oil gas would thus seem to be a very logical contender as a running mate for coal gas. Both coal gas and oil gas have about the same heating value and specific gravity and should blend perfectly for peak load service.

Explanation of Use of Chart

In order to determine the proportion of the annual output which could be economically taken care of by oil gas, Chart "A" has been prepared, which is a graph showing the cost of oil gas and coal gas for various prices of oil and coal. All the assumptions made in this calculation are made for Portland, Oregon, conditions, and may not apply elsewhere, but the example will serve for the purpose of illustration and even though recalculated for other conditions, the general conclusions should hold good. It will be seen from this graph that with oil at $1.20, no coal gas at all can be economically manufactured until coal can be laid down at the plant for in the neighborhood of $5, and this only for 365 days' operation. Taking the other extreme, with oil at $3 a barrel and coal at $7 per ton, at least 150 days of continuous operation would be required from the coal gas plant, which would mean that all of the plant operating for only five months of the year or less would still have to be oil gas plant. On the other hand, if one were to apply this reasoning to find out to what extent existing oil gas plant could be operated, as compared with the purchase of new coal gas plant, it would be at once apparent that even with oil at $3 a barrel, that is to say, a cost in the holder without investment for oil gas of about 75c, coal gas plant with coal at $7 will have to operate at least 108 days in the year to compete. Hence, all of the plant operating for less than 108 days, that is to say three months, would still have to be oil gas. The conclusion to be drawn from these considerations is that oil gas men need have no apprehension concerning the necessity of the scrapping of their existing oil gas investment, since for peak load purposes such plant will always handle the situation more economically in spite of higher operating costs, due to increased prices for oil.

Warm Air Furnace Heating*

This method of heating homes possesses many advantages

A. W. Lordahl

Columbus Heating and Ventilating Company

I AM going to read to you some extracts from bulletins sent to warm air furnace salesmen by the National Warm Air Heating and Ventilating Association:

"A close study of the heating situation from a national point of view discloses good reasons for predicting the dawn of a warm air heating era, an era of unprecedented prosperity for the warm air industry. This is so for several reasons, one of which is the more general understanding of the advantages of warm air as a source of home comfort. Another reason is the growing recognition of the line of demarcation between the fields for warm air systems and those for other kinds. There is, in reality, no conflict or competition between these two classes, warm air being greatly superior for homes of the usual construction and other types best for office buildings, large hotels, apartment houses, etc. Sales effort, therefore, limited to the proper field for the proper system, will be more successful than that which trespasses into other and more foreign fields.

Education of the Dealer

"Successful salesmanship as applied to the selling of warm air furnaces has been shown to include much more than merely persuading a prospect to buy a particular make of furnace. It must include the education of the dealer, first on how to sell and secondly on the merits of the line which the salesman has to offer.

"Dealers too often reflect the prejudices and the ignorance of the man on the street. And the man on the street is too often influenced by personal opinions gained here and there from unauthentic sources. In cities and towns where there is strong sales resistance to warm air furnaces it is a fact that the majority of people know very little about that system. They have heard that it is old fashioned, that it is dirty and it will not heat properly, and they take these things as facts for want of better information. Too often the dealer is content to accept the situation as inevitable and to sell the customer what he wants whether he should have it or not. You know the difficulty of handling such a dealer.

"Rather than avoid him, however, it should become a part of the general sales effort to educate him first and then try to sell him.

Sometimes that is difficult. Sometimes it is com-

*Paper read at the January meeting of the Industrial Gas Association of New England.

paratively easy. It is always worth trying, however.

Warm Air Heating Not Appreciated

"Experience has shown that unsympathetic dealers know very little about warm air heating. They do not know that it is the only system whereby they can absolutely guarantee comfort, that comfort is not heat, as it is so commonly supposed, but that it is the combination of temperature, humidity and ventilation; that the warm air system is the only one that provides anything more than temperature, that it assures humidification and ventilation automatically while it heats, that it costs less to install and less to operate than other systems, that it lasts as long, that the only way by which a dealer guarantees perfect winter comfort and satisfaction at economical cost is by a warm air system installed according to the standard code; that every code job paves the way for future business through contented customers; that in every population of 1,000 homes two car-loads of furnaces should be sold every year; that right now there are greater opportunities for warm air heating in this territory than ever before and that these opportunities will continue to increase from year to year.

Premier Comfort Appliance

"Perhaps you have never thought of it this way, but the warm air furnace as a comfort appliance has no competitor. There is nothing else like it, nothing in the heating field that does its work so well.

"Keep that in mind when you talk to your next prospect. Let him know that he is about to buy the only comfort appliance made. You can tell him just this way—and watch him gain interest as you go along: 'No, Mr. Smith, I can't compare this warm air furnace with any other type of heater; it would be like trying to compare quarts with pounds. Other types are heaters; the warm air furnace is a comfort appliance and the only one made.

" 'The difference is that comfort is more than heat. You may have a heater that will give you all the heat you want, but perhaps you will not be comfortable or be able to give your home that healthful cost atmosphere which every real home should have.

" 'That depends upon humidity and air motion, as well as temperature. And the warm air furnace is the only heating appliance that will humidify the air and maintain air motion at the same time. That means that you will not only be more comfortable, no matter how cold it may get outside, but also that you will be able to produce real comfort with less fuel, for it requires less humid heat to create comfort than dry heat.' "

Installation of Furnace Important

The installation of the warm air furnace is very important. First we must determine what size furnace to use and in doing this we must be very careful. Determining the size of furnace to be used should be done by the heat loss method, a method approved and published in the book on house heating by the American Gas Association.

Next of great importance is the proper location and size of warm air pipes and registers. Each room should be measured to get the size of the pipe. These figures should be determined in accordance with the national code. After figuring the rooms for warm air pipes, figure them for the cold air. For every 1,000 inches of warm air pipes there should be 1,000 inches of cold air.

There should be at least one cold air return from every room. Two pipes will have to be used for some rooms and three or four pipes may be better. There must be enough cold air returns. They should be located on two or three sides of the room. Cold air will find the first possible exit and by using enough properly located returns all the cold air is taken immediately to the furnace and reheated and there are no cold spots at any time in the room.

The best results cannot be secured unless the cold air is taken from the rooms. This is more the case with gas furnaces than with coal furnaces. With coal, more fuel may be added, the drafts may be opened, the furnace overheated and its life shortened, but the heat forced to the rooms to be heated. Gas furnaces are so designed that this cannot be done and great attention must be given to the cold air returns.

Location of Furnace

The proper location of the furnace is hard to determine in general but, roughly speaking, it should be placed on the windy side of the house if doing this will not make the pipes too long. If it is not placed on the windward side of the house, then it should be so placed that all the pipes are of about equal length.

It has been found that the best practice to bring the warm air pipes from the furnace is to bring them up two to four feet from the top of the furnace at an angle of 45 degrees to the floor, then make another 45 degree turn and run the pipe level or at a slight pitch to the riser.

Warm air heat is circulated by gravity and every precaution must be taken against undue friction which will tend to slow up the circulation. When bringing the cold air pipes down to the furnace, 45 degree angles should be used rather than right angles. It is good practice to bring the pipes to a point near the furnace where a 45 degree will direct them from the ceiling of the basement to the base of the furnace. They should enter the furnace not more than 18 inches from the floor and the pipe connection should be flared out to take in as much of the side of the furnace as possible toward the end that it be distributed uniformly around the firepot and not travel upward in a narrow stream.

Pipeless Furnace Cannot Be Used Universally

The cold air should never be taken from the outside nor from the basement, but always from the rooms to be heated. The so-called pipeless furnace does not give good results in the ordinary house. In places where there are no doors or partitions it may give better results. The difference between the warm and the cold air in a properly made installation is only about 10 degrees and this requires that a free path be provided, not only for the warm air, but for the cold air as well.

Tests made on a good installation show a temperature at the ceiling nine feet above the floor of 78 degrees, at breathing level 70 degrees and on the floor 64 degrees. With a one-pipe system and the cold air taken from outside the corresponding temperatures were found to be 68 degrees, 64 degrees and 50 degrees, showing too great a variation in temperatures at different levels.

Importance of Proper Humidity

With the proper humidity and the proper temperature, a person in good health will never feel chilly. Forty per cent relative humidity is good to use and the water level in the evaporation pan may be adjusted until tests show that this is the humidity that is being attained. In a six or seven-room house it requires the evaporation of about eight or ten gallons of water to attain this humidity over a period of 24 hours.

Bright tin pipes require no insulation. As a matter of fact, tests conducted at the University of Illinois show that one sheet of insulating paper actually increases the heat loss. One inch of insulation such as is used on steam pipes reduces the loss very slightly. Painting with aluminum paint increases the heat loss to a very decided degree and when the pipe gets rusty the heat leaks through it like water through a sieve. As a matter of fact, what little heat is lost through bright tin pipe is needed to keep the cellar warm, for with a gas furnace there is practically no radiation from furnace itself. The outside is always comparative cold.

If galvanized iron pipe is used, sizes 15 per cent larger than tin have to be used because of the increased friction, which means that there is little or no economy in using it. Good tin can be expected to last for 30 or 40 years, but there is a lot of cheap stuff on the market that has a very short life. the long run, it is better to use the best material practical to use. If we could use pure tin pipes, they would last for ages. In regard to the life of the furnace itself, we have them installed in the natural gas fields that have been in use for 30 years.

Gas at a Food Show

The Brooklyn Union Gas Company has fine exhibits

J. W. Piatt

BROOKLYN'S 35th Annual Food Show under the auspices of the United Retail Grocers' Association was held at the 13th Regiment Armory, March 8th to 20th, 1926, and, as usual, was a tremendous success.

The welfare of a nation depends ever so much upon the health of its people. Food, clothing and shelter are the essentials that are necessary to make a happy, healthy, contented people. Today, we have expositions held periodically to call attention to the highest qualities in these general necessities. Good food is the first essential in producing good health. And today we have Food Shows where the best of everything we eat is shown—not only the food itself, but the methods and means by which it is prepared.

This Show was greater than all of its predecessors, great as they have been. The Brooklyn Food Show stands unrivalled for the perennial interest of the city's domestic population and though this is the 35th annual exhibition, it still retains the freshness of something new. For the benefit of those who fear that women will soon cease to be interested in home affairs, a visit to this show would have been very reassuring. The dominating impression after viewing the vast throngs was the overwhelming preponderance of women, and the remarkable youth and beauty of those women who came with shopping bags to purchase edibles for the home.

The value of these foods shows is beyond ordinary estimation.

Much to Interest All

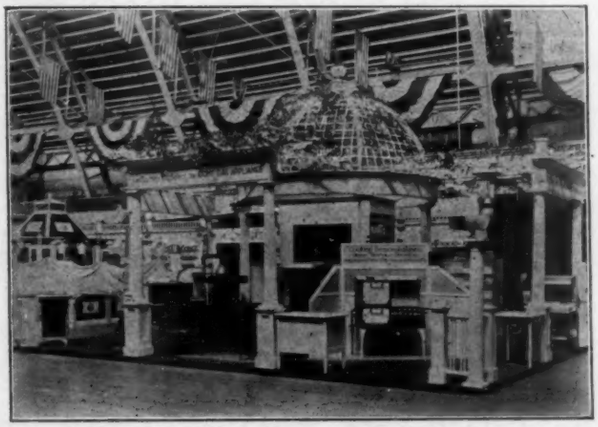
The Brooklyn Food Show had much to interest everybody and no visitor evidently failed to look at the display of gas ranges that was shown there.

Near the center of the Armory was found a booth notable for its beauty of design and the attractiveness of its decorations. The space occupied by the booth was a square with a broad aisle on either side. From the middle of each side a decorative pergola opened into the central portion of the booth. The central portion rose on four columns into the form of a latticed dome. Wistaria and other twining vines clambered about and clung to this dome and rambled over the beams of the pergolas, giving a living, airy, summer-time effect to the booth. This artistic and dainty effect at this season, when the

dull, arduous days of winter are breaking into brighter, pleasanter days of springtime, and the thrill of eternal change begins to wake one to the desire for something bright and clean and new, did not fail to attract and please the average visitor.

Fine Gas Exhibits

Under each of the pergolas and within each of the corner spaces of the booth, displays of the finest art of the modern gas stove builder in the cleanest,



The Brooklyn Union Exhibit at the Show

neatest, most efficient types of today were arranged to attract the eye, and please the housewife and the house builder. Some of these gas ranges were connected with gas so that living demonstrations were given to those whose interest carried them to this feature of these appliances. There were appliances for cooking, for heating and for lighting the home. Those who make purchases from the bakery and from the delicatessen, or take their meals in restaurants and hotels found the kind of appliance upon which their food is cooked. Those whose interest center in institutions and hospitals found the most modern gas appliances for their requirements. The confectioner, the syrup maker and the manufacturers of bottled foodstuffs found appliances here suitable to their needs.

Each section of the booth had a representative of the Gas Company in attendance to answer questions, to explain appliances, to demonstrate them, and to help in selecting the proper appliances for almost any of the four thousand purposes for which gas is the proper fuel to use.

The Gas Range At Its Best

The modern gas range was shown in its best types, and it is not only a handsome household appliance, but it is designed to cook foods properly and to do this with ease and economy.

In this connection, demonstrations were given by the Home Service Division and they were the center of great interest, which manifested itself in requests for formulas, recipes, length of cooking time and temperatures. The miniature kitchen was attractive because of its neatness and practicability and the quality of the samples of cooked food given out by the demonstrators convinced everybody that the Home Service work of the Gas Company is dependable and valuable.

This booth and the gas appliance exhibit it contained were well worth any visitor's attention. The citizens of Brooklyn visited the Show and then called at the booth of The Brooklyn Union Gas Company and saw for themselves the wonderful progress that has been made in the appliances that have so much to do with their food and their health.

Statistics*

Their value to the operating man and the executive

Rudolph Jenny

Assistant Rate Engineer, Pacific Gas and Electric Company

TO the writer was assigned the task of preparing a paper on statistics, a subject that the average utility man may find uninteresting and at times even quite tiresome to listen to or read about. However, we are coming to the stage where statistics and statistical methods and procedure mean much to us.

We are living in an age in which the growth and progress of our industry has gone ahead faster than in any previous period of its history. There are now in operation in the United States approximately 1,000 manufacturing gas companies, serving 10,000,000 customers in 4,600 cities, towns and villages, whose population aggregates in excess of 48,000,000 people. In the year 1850 there were in existence only 30 companies, according to the United States Census reports, whose combined receipts totaled less than $2,000,000. This year sales of gas will approximate $450,000,000. In the last 10 years both the output of manufactured gas and the revenue received therefrom have increased over 100 per cent.

*Presented at the 1925 convention of the Pacific Gas Association.

This extraordinary acceleration in growth during the last decade in our industry has brought about a realization that statistics and statistical applications are more and more necessary in successful business administration.

What Is Statistics?

Statistics is the science which treats of the collection and arrangement of facts and figures, either in a numerical tabulation or a graphical presentation, for the purpose of comparing units that are related, or of investigating and analyzing the phenomena behind the figures.

Statistical analysis and study leads to only one goal, that of comparison in order to learn the truth about conditions. For that reason the facts and figures, i.e., the tools which are used, must be representative. Comparisons must be limited or restricted to units or things that have points in common. Otherwise, the statistical data, sometimes collected at much effort and at great expense, have no value.

Statistics Require Intelligent Interpretation

Statistics, as an instrument of scientific investigation, require intelligent usage and the results secured through such analysis require intelligent interpretation. The human faculties of substantial and logical reasoning and critical judgment have not as yet been rendered useless because of the development of mechanical statistical methods or procedure. While mechanical devices have been perfected by which certain statistical matter may be readily and speedily collected, there yet remains to be perfected the machine that is automatically accurate, so that jumbled facts can be fed in at one end and answers to problems flow out at the other end. The human element still dominates the science of statistics and, without its guidance and direction, this science is lost.

Function of Statistical Department

Having dwelt somewhat at length on the nature of statistics and what a statistician is and should be, let us now pass on to the functions of a statistical department. As a practical demonstration, I shall choose the statistical department of the company with which I am connected—the Pacific Gas and Electric Company. There is not one branch of the industry's work, or one department of the company's organization that is called upon more or referred to or relied upon more often than is this department.

Our statistical department is under the jurisdiction of the vice-president and executive engineer and functions under the immediate supervision of the rate engineer. It is fitting that the statistical department does operate under this arrangement as the primary statistics that are regularly recorded are such that they are immediately pertinent to the regular and specialized duties of the executive engineer and the rate engineer. It is the duty of the department to correlate and record all the physical statistics of corporate interest and all the historical or epoch-making facts of the company, whose activities embrace the serving of nearly 800,000 consumers with either one or more of the following commodities: electricity, gas, water, steam heat. telephone service; besides operating an electric street railway system in the third largest city of our state.

Obviously, accountancy figures largely in its work. However, the accounting department is solely responsible for all the financial accounting of our company. We have access to all the financial statistics in the accounting department and from that department receive regularly special reports and copies of all the current important financial statements that are issued. From all other departments of the company copies of statements that they from time to time issue, having any value statistically, are furnished the statistical department. These are the tools, the crude figures, upon which special analysis and statistical presentations are based. The results of all these specially prepared statistical reports are of great value, as they record the performance of all angles of our company's activities, and copies of all these statistical reports are furnished the executives and those management officers who are affected or particularly interested in the subject matter of the report.

Plant Records

The statistical department maintains the record of plant output; of sales of each commodity by incorporated towns and cities and suburban territory of each geographical division; of the number of consumers of each commodity; of the load connected; of the miles of utility electric lines; gas mains; of the number of services, transformers, meters—all by town and geographical territorial locations; of the amount of oil used in steam electric plants and gas manufacturing plants, and of many kindred statistical items. The segregation as to towns, plants and divisions, as the case may be, all correspond in the statistical reports to the segregation used in reporting additions to plant, revenues and expenses, so that cost data, special research or economic analyses and rate presentations for rate cases or other legal procedure may be readily developed, if not already existing right in the records.

Assembling Miscellaneous Information

In addition to these vital physical and financial statistics, the department also assembles information and material of general interest pertinent to the company's activities. The clipping and routing to various officials and departments of newspaper articles, or news items, appearing in pamphlets and reports issued by the many utility information bureaus and in the various trade journals or in governmental or municipal reports, is all a routine duty of the statistical department. Ofttimes lengthy, although important, articles are digested and copies of the digest distributed to those interested. Copies of divisional and departmental annual reports, or special reports

of statistical or reference value are sent to this department for reference, cataloging and filing.

In conjunction with general statistical work, this department has recently added to its organization a company business library, through which the department acts as a general reference and central file bureau and depository for all departments of the company. This idea of a company business library, particularly with public utilities, is fairly recent, so far as we can learn, and we believe it is a step forward.

Advantages of System

Centralizing statistical work in one department under the jurisdiction of an officer of the company has many advantages. The main one is that it eliminates a tremendous amount of duplication. Special reports, emanating from the operating or commercial department and pertaining specifically to such work, often contain a wealth of statistical material. It occasionally happens that some other department, not knowing the existence of such material or report, or not knowing all the conditions surrounding certain facts and data, may prepare from not so perfect a source material that is identical or perhaps similar to that already prepared and in existence. On the other hand, they may be placed at a disadvantage in not having it, or in not knowing that the data are already available. Through co-operation with and centralization in the statistical department of all available or specially prepared information and by careful indexing, the contents of all such reports are properly and promptly made available to the statistical staff and, through them, to those departments and employees who have contact with the statistical department for information. Further, through centralization, a higher degree of accuracy is possible, as the statistical staff is trained in the uniform treatment and interpretation of the material available, or that must be developed.

Value of Statistics to Operating Man

Up to this point I have made mention of the use and value of statistics to our executive, or to the business as a whole. Considerable of the statistical material prepared for the executive's use is of value also to the operating man, though it may not be in the form to really give him just what he wants. The ordinary operating man wants to know what his labor and material costs of operation are, so that an unusual rise or decline may be investigated and, if due to operating causes, may be corrected. He should have such information and can get it from the accounting officer or the statistician if he would make his wants known. It is my observation, from contact with several operating men and engineers, that they complain they are not getting statistical data on costs of operation or on efficiencies of units or plants. I have heard it stated that the classification of accounts is such that efficiencies or unit costs can not be determined for plant units. To avoid argument, let us not discuss the classification of accounts. It has given us all more or less grief for a long time, but I do not think it advisable to attempt to further refine the classification of accounts for the sole purpose of making it possible to elaborate on statistics or to furnish details on the operations of individual units or machines. The accounting classification is probably now already overburdened with too many segregations.

It is probably a fact that the utility operating man has not been furnished with sufficient statistics on costs or on efficiencies and that getting them meant creating an internal statistical staff, that is, one within his own organization, if he found he could not personally attend to that duty. Then, after he had worked up some statistics, they probably did not mean much, as they were not comparable to another set of figures developed for the same purpose, but by someone else, or based upon a different method of compilation or interpretation of the classification of accounts. These are the difficulties usually encountered and so far as can be seen now they will continue until aggressive action is started to standardize utility practices in the preparation of statistical data.

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A GAS FURNACE DISPLAY

The Pacific Gas & Electric Company Displays Customers' Wares

C. W. Geiger

TWO large display windows of the San Francisco division of the Pacific Gas & Electric Company were turned over to customers of the company in rotation for the display of their goods, the display in each case being arranged under the company's direction.

Each window was equipped with gas, compressed air, water and drainage connections.

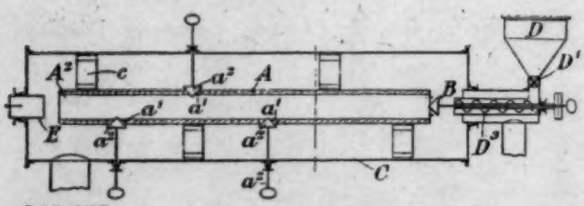
The accompanying photograph shows the radiators and furnaces that were displayed for one week, other weeks being devoted to other makes of gas-fired equipment such as the Bryant Warm Air Furnace, the Babcock Furnace, the Humphrey Radiantfire, etc. In addition to furnaces and heaters the windows have been turned over in rotation for the display of candied fruit, chocolate, etc.

PROGRESS IN GAS TECHNOLOGY
Domestic and Foreign

DISTILLATION OF CARBONACEOUS MATERIALS

IN the distillation of carbonaceous materials such as coal, shale, lignite, peat, wood, sewage sludge etc., at low temperature by means of an inert gas, the important factors are the temperature range, the period of distillation, and the nature of the atmosphere within the retort. In this invention, these factors can be independently controlled by providing means for admitting the inert gas at different points in the interior of the retort.

The retort C is provided with an inner concentric tube A, which may have a valve B at its outlet end. The inlet end A^2 is arranged a short distance away from the opening of the conduit E through which the hot gases for distillation are introduced. The tube A is attached to the retort C by plates *c*, and



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is provided at various points along its length with openings a^1, controlled by valves a^2, the spindles of which extend outwards through the wall of the retort so that the valves may be manually operated.

The material to be distilled is fed from a hopper *D* through a rotary valve D^1 to a screw conveyor D^2, which delivers it into the retort. Part of the gas from the tube *E* enters the tube *A*, owing to the resistance of the material in the retort, and this hot gas may be distributed to the retort by the valves a^2 as required. In an alternative construction, the tube *A* may be replaced by passages formed in the firebrick lining surrounding the retort. The hot gas is admitted to the retort as required, through passages arranged at various points along its length and provided with valves. The material to be distilled may thus be caused to pass through zones the temperature of which may be adjusted to any desired point.—British Patent No. 243,857.

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TESTING GAS APPLIANCES

A TECHNOLOGIC paper No. 304, of the Bureau of Standards, Dept. of Commerce, is entitled "Methods for Testing Gas Appliances to Determine Their Safety from Producing Carbon Monoxide."

This paper comprises an intensive study of the causes that result in the liberation of carbon monoxide from gas-burning appliances. It goes into a detailed discussion of the methods used in making the tests and the apparatus employed and of the results obtained. Thus, for example, the method of testing consists in the determination of flash-back, blow-off and yellow-tip curves; of the limit of complete cumbustion; and of normal injection curve. The booklet contains these curves, and complete description of their significance.

The conclusion that was reached is that all types of appliances commonly used, such as ranges, water heaters, space heaters and the like, can readily be made safe from the carbon monoxide hazard. It is also pointed out that there is no certain way of telling whether such an appliance is safely operating by its mere appearance, even when the observation is made by an experienced person. The only way, in which to tell whether the appliance has been properly designed and constructed. is by making suitable laboratory tests.

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GAS WASHERS

THIS gas washer is suitable for the extraction of ammonia and other impurities from coal and other gases. The gas flows upwards through a series of superposed chambers *a*, each having a spraying device *b* which sprays the extracting liquid into contact with the gas. The sprayer comprises a number of concentric inverted cones *c* of unequal length, so that the upper edge of each cone projects above the edge of the surrounding cone, while

246,978

the lower ends of the cone dip into the liquid to be sprayed. The cones are carried by a rotating shaft *f* by means of a spider *g* to which the cones are secured by bolts *d*. The upper part of the rim is perforated so that a combined spray of considerable depth is obtained through which the gas passes upwards. The cones may be provided with internal spiral vanes to increase the lifting capacity.—British Patent No. 246,978.

As The Journal Views It

GOVERNMENT OWNERSHIP OF UTILITIES

It may well be that the case of government ownership of utilities is now not nearly as important a subject as it has been in the past, for the simple reason that people have come to understand the falseness of the arguments that have been used in furthering this idea. Nevertheless, one can never tell where this hydra-headed monster might poke out its head and again appear on the scene. It is therefore incumbent upon the utilities of the country always to be ready to combat government ownership and to make public, as frequently as possible, information which will show the people of this country just how supposedly "successful" this form of operation of utilities has been in those European countries which have been used as shining examples by government ownership protagonists in their effort to have their plan worked out in America.

Not very long ago, a Swedish gas engineer of renown, visited this country and inspected various gas plants and studied general conditions of the gas industry in America. When he returned to his home, he published a very interesting article in a German gas paper in which he had some very pertinent remarks to make about the manner in which the gas industry has progressed in this country compared with Europe.

One remark, which he made and which is particularly significant in this connection, is that his observation was that the American gas companies were able to secure industrial business and develop and progress to a far greater degree than European gas companies for the simple reason that, not being government owned, they had greater freedom for commercial activity. This is a very interesting commentary on the "successful" government owned European utilities and one that forms a further argument against all government operation of utilities. We all know that the red tape that surrounds the workings of governmental operations is strong enough to deter the most courageous seeker of information or fact, and we can well realize the difficulties that would be caused when the government-controlled gas utility attempted to develop new uses for gas in the industrial and domestic field. There is no question but that the progress of gas or of any other utility or business would be seriously retarded and that the loser in the final analysis would be that very citizen, who had called so loudly for the government to step in and own and operate these utilities.

It has also been reported that the tide of opinion is now decidedly against government ownership in several European countries. This has been attributed to a certain extent to the desire of the taxpayers to get rid of the burdens placed upon them due to the deficits constantly showing in the government-owned industries. The service is poor and restricted and there is general dissatisfaction. The government-owned utility is not interested in progressing and in improving the quality of the service that it renders and it just actually exists from day to day.

These reports should have a very strong influence in combating whatever propaganda is still being issued in favor of government ownership of public utilities in this country. For, when the examples, which have been held up to the American people as remarkable instances of the benefits to be derived from public ownership, are demonstrated to have proven to be total failures, it would appear that the fundamental argument of the government ownership protagonists has been refuted. Their case, it must be evident to all, is now entirely lost.

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PROBLEMS OF THE SMALL GAS PLANT

It is not at all a strange condition that the majority of the gas companies that make up the gas industry are comparatively small. We find a similar state of affairs in most every industry. Only a few of the members of an industry are great corporations; the majority are average sized. Therefore, when we speak of the gas industry, when we consider the service that is given to the gas industry by any organization, or by the associations that are found in it, we must weigh this service by what benefit is rendered the majority or the small gas companies that make up the industry.

It will, therefore, be of interest to the small gas companies of this country and Canada, to know that

at a recent convention held by the Southern Gas Association, a good deal of the program was entirely devoted to the presentation and discussion of papers relating to the operation and the different problems of the small gas works. It is of course commendable that an association should thus devote itself to the interests of the small gas men. Not only that, but that gas men, who are connected with the large gas enterprises, should prepare papers relating to the small gas companies' problems. Nevertheless, it must be pointed out here that the small gas company can often find material of interest and value in articles written by gas men connected with large gas enterprises and concerned primarily with the operations and problems of these enterprises.

It has always been a main effort of the editorial management of the American Gas Journal to serve the small gas men and the small gas companies by publishing articles that contain material that will be of direct or indirect interest to them. In this work we have had the cooperation of some small gas men and also others who are connected with the larger undertakings. It is an important matter to the small gas companies and we bespeak here the cooperation, in the form of contributions, of all gas men interested in the small gas works.

Market Condition Remains Satisfactory

Low profits slow up progress in business

L. W. Alwyn-Schmidt

READERS of this forecast will not have been entirely surprised at the sudden debacle, which overtook the stock markets early in March, in view of the opening paragraph of our forecast for March, 1926, published in last month's issue. It is not the purpose of this forecast to make predictions about the course of stock exchange speculation, but the fact remains that the big economic factors, governing the nation's business, can not but fail to have their effect upon the security business. We wrote, "A weak spot has remained somewhere in the structure of the market"; we wrote it not as a matter of personal opinion; in fact, we were reluctant to write the sentence, but we wrote it because it was indicated by the statistical system used in building up the forecast.

The air having been cleared by this landslide of security prices, efforts are now being made to minimize the effect of this occurrence and to prevent a panic. The stable is locked after the horse has been stolen. The fact is that much trouble might have been saved the nation, if official forecasting had been more reticent in its outpourings a few months earlier, and more conservative in its estimates of the manifest or real prosperity of the country. Luckily there is as little reason now to fear an industrial panic as there was to call for exaggerated rejoicing earlier. The market is healthy and its development has been normal since the turn came early last fall. But it is not a boom market, and it is bound to show weak spots until the newly gained situation has been fully secured in every respect.

Winter Sales Satisfactory

Reports from retail centres agree that sales have been very satifactory during the last winter season with a promise for similar satisfactory results in the spring. Prices of manufactured merchandise have not shown any marked tendency to improve, but indications are for an improvement with the beginning of the spring business. This may also see the final disposal of the stocks of lower-priced merchandise left over from the last few months. It is to be hoped that industrial producers have used this opportunity for ridding themselves at reasonably good prices of their reserve stocks of manufacturing supplies. Not all have accomplished this feat without further curtailing the existing very narrow profit margin. This of course was to be expected and is no reason for apprehension, provided that nothing occurs to weaken the general situation of the market.

Danger of Low Profit Policy

But there is no doubt an element of danger in a continuation of this policy of low profits. It was adopted as an expedient to meet competition, and it works well as long as the ball can be kept rolling. It is thrown out of gear on the slightest provocation, because it does not leave the manufacturer a sufficient margin to build up a financial reserve. It requires a large turnover and prompt payment. Unfortunately it has been followed as a general practice by many branches of the national industry, and it remains a vulnerable spot. The press, the banks, accountants and Credit Men's Associations, will have to assist in rectifying this situation by emphasizing its dangers and educating industrial producers to a better understanding of the requirements of industrial financing. And it is well worth while to state

(Continued on page 320)

INDUSTRIAL GAS LESSONS

IF IT'S DONE WITH HEAT — YOU CAN DO IT BETTER WITH GAS

Lesson No. 114

Combustion

Peat

The lowest grade of solid fuel, outside of wood, is peat. This is a product, which resembles the original vegetable matter from which it was derived, most closely of all the solid fuels, which, of course, all claim the same origin. There are usually two kinds of peat, one known as high-bog peat and the other called low-bog peat. The first kind of peat is formed from heath and swamp moss and is usually found at high altitudes. Low-bog peats are formed largely from grasses which border low bodies of water.

The color of peat varies from yellow to black and the fibrous structure of the vegetable matter is easily discernible in it. Some peats are hard and others soft. The most peculiar characteristic of peat is its rather high proportion of nitrogen and oxygen, and the poor combustibility of the volatile matter contained in it. A few analyses of peats are given below.

	Composition per cent by weight Dry						
Origin	C	H_2	N_2	O_2	Ash	Moisture per cent air dried	Physical properties
Ireland	61.02	5.77	0.81	32.4	7.9	10 to 25	dark brown dense
France	57.03	5.63	2.09	29.67	5.58	...	dark brown
Germany	47.90	5.80	42	80	3.50	17.0	light, felty mass
Switzerland	40.10	4.53	2.84	21.51	7.87	23.17	pressed peat

These figures serve to show how much the composition of the peat varies. The average calorific power of peat per pound according to the percentage of moisture that it contains is seen from the following tabulation:

Peat with zero per cent water and zero per cent ash 9090 B.T.U. per lb.

Peat with zero per cent water and 15 per cent ash 7992 B.T.U. per lb.

Peat with 25 per cent water and zero per cent ash 6840 B.T.U. per lb.

Peat with 30 per cent water and 10 per cent ash 1462 B.T.U. per lb.

As a general rule, the percentage of sulphur in peat, is below one per cent. Some peats contain a considerable amount of nitrogen and in this case, their value is materially enhanced.

In the United States, peat is one of the big fuel reserves and it is only a question of time when it will be mined and used in large quantities. This will take place, of course, when the more readily-accessible coal deposits become exhausted. The consumption of peat in the U. S. is comparatively small, and it really has no real commercial importance at the present time. Thus, in 1922, the consumption of peat was 61,000 short tons.

The following table, which gives a comparison of peat with other coals and fuels is of interest.

PEAT
Peat is the Lowest grade of solid fuel.
Peat contains high percentage of water and has lowest thermal power of all solid fuels. There are two varieties — Low bog and High bog.
AVERAGE HEATING VALUE OF VARIOUS FUELS
WOOD------ 5800 B.T.U/Lb.
PEAT-------3586 B.T.U/Lb.
LIGNITE---- 7090 B.T.U/Lb.
BITUMINOUS-13913-B.T.U/Lb.
ANTHRACITE-13298 B.T.U/Lb.

Per Cent

Kind of Fuel	Moisture	Volatile Matter	Fixed Carbon	Ash	Sulphur	Hydro-gen	Total Carbon	Nitro-gen	Oxygen	Heating value B.T.U. per lb.
Wood						6.25	49.50	1.10	43.15	5,800
Peat	56.70	26.14	11.17	5.99	0.64	8.33	21.03	1.10	62.91	3,586
Lignite	34.55	35.34	22.91	7.20	1.10	6.60	42.40	0.57	42.13	7,090
Subnituminous	24.28	27.63	44.84	3.25	0.36	6.14	55.28	1.07	33.90	9,376
Bituminous	3.24	27.13	62.52	7.11	0.95	5.24	78.00	1.28	7.47	13,919
Semi-bituminous ...	2.03	14.47	75.31	8.19	2.26	4.14	79.97	1.26	4.18	14,081
Semi-anthracite ...	3.38	8.47	76 65	11.50	0.63	3.58	78.43	1.00	4.86	13,156
Anthracite	2.80	1.16	88.21	7.83	0.89	1.89	84.36	0.63	4.40	13,298

MARKET CONDITION REMAINS SATISFACTORY

(Continued from page 318)

here that it is principally the average-sized and small manufacurer who sins in this respect and not the large corporation.

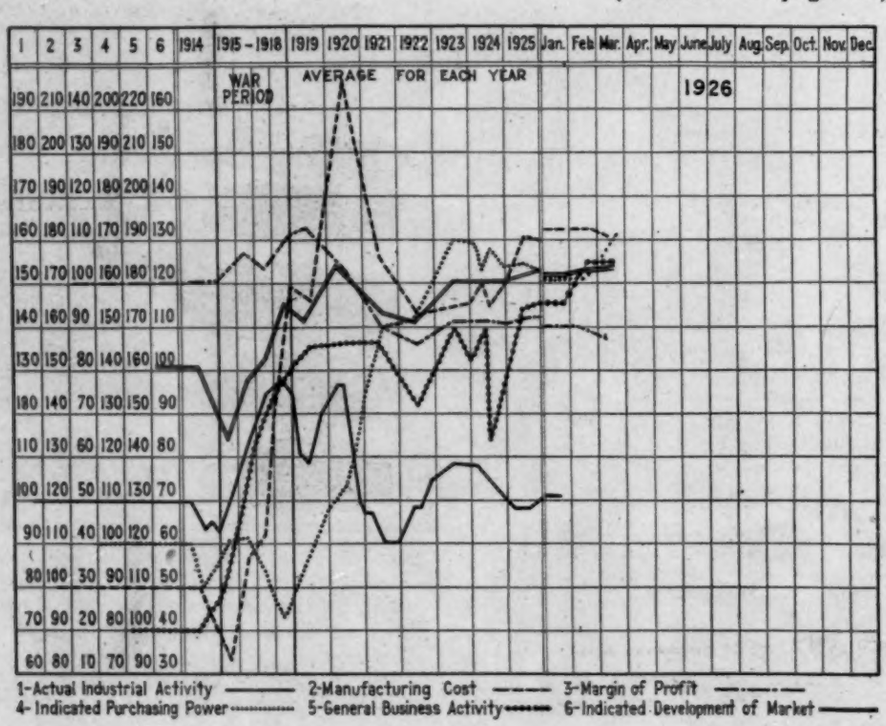
Some relief, no doubt, has come from the increasing purchasing strength of the market. Retailers have learned to apportion their purchases more correctly in conformity with the actual requirements of their customers. This has led to smaller orders which, however, are very considerable in the aggregate and it has the additional advantage of relieving the jobbers of the need of carrying their customers. Payments being smaller are made more promptly. An opportunity, therefore, is given the small manufacturer to improve his financial situation and extricate himself from the unfortunate position in which he had placed himself by indiscriminate selling at an insufficient profit margin. So much, therefore, is gained.

Cutting Down Overhead

Cutting down overhead represents another feature in this process of general national sanitation of business. Efficiency experts are reaping a harvest by finding means to make, not two blades grow where formerly only one grew, but by making one grow upon half the cost of space and energy. There is nothing more abhorrent to the American manufacturer than to retrench. But it is now energetically done, and it is accomplished by cutting down superfluous space, office personnel and the elimination of inefficient equipment. It is a slow process, unwillingly performed, which is the reason that only now the results of work started during last year begin to start. It will be aided by strict government economy and a reduction in taxes and of the cost of national service.

Manufacturers will be well advised to watch their step. The outlook is very hopeful and business no doubt will be good during spring and early summer. But the present is no time for expansion. There is still much unexplained in the condition of the

(Continued on page 322)



GAS MERCHANDISING

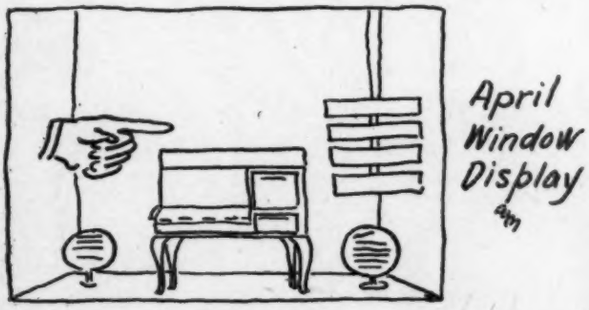
Domestic – Industrial

Ideas for the Man Who Sells

William H. Matlack

AN APRIL WINDOW DISPLAY

HERE is a simple gas range display that anyone should be able to construct. It is simplicity itself. A gas range, a banner made of from four to six small "feature cards" as indicated in our sketch to the right of the window, a large "cut-out" hand to the left and two small round signs on



either side of the range. This display may feature a Spring Special in which case the terms, etc., should be printed on the two round cards while the cards to the right of the window may tell the story and give reasons why the customer should buy now.

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EXPLOITING HOUSE HEATING

ONE of the mid-western gas companies has an idea that is well worth passing along. This company at this very moment is perfecting plans to exploit house heating for next winter. Sketches are being furnished by the posting companies for full size painted boards to advertise gas as the ideal fuel for home and office heating. The boards will all be of the modern painted type, with night illumination and will be located along all highways where traffic is heaviest. The present plan

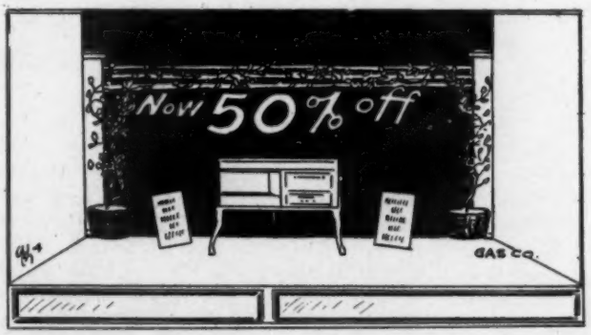
calls for a short snappy sales message with two illustrations to each board, one to be that of a gas holder using the slogan "Your Fuel Bin" and the other to illustrate a comfortable home scene.

☼ ☼ ☼ ☼ ☼ ☼

SIMPLICITY IN WINDOW DISPLAY

WINDOW displays, as we have frequently pointed out, need not be costly to be attractive; quite the contrary, for many very effective windows may be built with but a few strips of composition board and a few cans of colored paint. The window, illustrated here for instance, consists of a background of composition board, three strips of thin lumber, one and one-half inches wide and two one by twelve inch boards eight feet long.

The composition board is used to build the back drop, the two tubs or pots for the vine, which is



made of wire covered with crepe or tissue paper. The one and one-half inch strips form the trellis and the top of the columns, which are made of the one by twelve inch boards. The decorations, made of crepe or tissue paper, represent a flowering vine, which twines about the columns and trellis. The words "Now 50% Off" are also made of the composition board and are suspended by fine piano wire,

This man does not understand modern gas company advertising—hence he does not believe in it

stretched from the column across the back of the window and immediately above the solitary all-white enamel gas range. The two cards, one on either side of the gas range, tell the sales story. The colors in a window of this type may be any one of a number of combinations, care being used to see that they do not "clash." Try a window along this line and you will be surprised how simple it is to construct and how effective it is.

HOT WATER TIME IS AT HAND

WITH the coming of summer every gas man in this broad land will be thinking of water heater sales, and if the number of new heaters is any indication of what may be expected, 1926 looks like the biggest water heater year in the history of the industry. Now, however, is the time to perfect your plans for sales campaigns, advertising and window displays. Get out your file of The American Gas Journal; in it you will find many ideas for advertising, store and window display.

There is the mystery faucet and other displays that are well worth using, if you have not already done so. Sell hot water to every member of the family this year, even to the man, for dish-washing purposes as well as for the daily bath he likes to talk about taking and the hot water he must have for the morning shave. Use these old themes—brushed up—and put in some new ones. Now's the time to perfect your plans!

(Continued from page 320)

market. The consumer is well supplied with funds. But the general adjustment of business has made precarious the position of the salary earning classes. The small and average-sized manufacturers find their earnings reduced, and, therefore, are going slow with their personal purchases. There is, of course, work for all, but it does not pay so well any more for the middle classes. This must have some effect upon the market.

✿ ✿ ✿ ✿ ✿ ✿

IF YOU USE GAS

In starting to use a new gas range, care should be taken to heat it gradually, as this will have the effect of tempering the metal. If a new stove is allowed to become too hot the first time it is used, it may cause some of the parts to crack or warp. Gradual heating and cooling has the effect of annealing the various parts so that they will stand any strain thereafter.

Sometimes trouble is experienced with rust in the interior of the oven, but this can be prevented if the door is left open for a minute or two after the gas is lighted, so as to allow the moisture to escape.

It is said that if bread pans are warmed before baking, the bread will be lighter.

In using a gas fired tank heater, the water should be used immediately because otherwise much heat will escape by radiation and gas will be wasted.

It sometimes happens that steak will catch fire when being broiled. Don't try to blow the fire out. Shut the oven door tightly, shut off the gas, and the fire will die out very quickly.

Scorches on clothes due to a hot iron can sometimes be removed by dampening with peroxide of hydrogen. The garment should then be pressed flat and placed in the sun to dry.

An ordinary brick makes an excellent stand for a flatiron, as an iron will retain its heat much longer than when placed on the regular stand.

In using a gas water heater, unless it is automatic, there is no economy in turning down the gas flame. It requires just so much longer to heat, and radiation throughout the longer time will be greater, thus requiring more gas. Fifteen minutes with the gas turned on full will give more satisfaction than three-quarters of an hour with it turned down low.

If a teakettle is used to heat water on a gas stove, care should be taken to turn the spout away from the outside edge of the range. The same precaution should be taken with handles of kettles. Children do not understand the mechanics of boiling things and inquisitive fingers sometimes cause unfortunate accidents.

NEWS OF THE GAS INDUSTRY

A. G. A. Committee on Customer Ownership Outlines Plans for Year

That gas companies are keenly aware of the importance of customer ownership is shown by the response to a preliminary questionnaire sent out by the Customer Ownership Committee of the American Gas Association. S. E. Skelly, manager, Investment Department, Portland Gas and Coke Company and Pacific Power and Light Company, is chairman of the committee.

At a recent meeting when the work for the coming year was outlined, it was decided to send out immediately a questionnaire to those companies not known to have engaged in customer ownership campaigns. More than 250 of these questionnaires have been returned. This response is especially gratifying, for last year only 141 companies replied to a similar questionnaire.

A more detailed inquiry has already been sent out to those companies known to have undertaken customer ownership campaigns and it is expected that these companies will show the same spirit of cooperation.

Mr. Skelley, who has been in charge of the sale of stock for the Portland Gas and Coke Company and the Pacific Power and Light Company since these organizations undertook customer ownership campaigns in 1920, is thoroughly familiar with every phase of the work. With the aid of a competent committee he has laid out what should prove to be a helpful program to member companies of the A. G. A. who engage in or contemplate the sale of securities to their customers.

Scope of Activities

"Our committee believes that the scope of its activities," says Mr. Skelly, "should include not only the collection and compilation of statistics covering the progress of customer ownership, a consideration of the chief problems that have been encountered and the best methods of meeting them, but also a forecast from the trend of the movement of the difficulties and dangers that might develop in the future. Investigation, thus far, has shown that some companies, through a desire to accomplish things immediately, have not seen that the inevitable 'day of payment' must be met on short-sighted policies and poorly considered plans.

"With the cooperation of member companies, to which we feel the committee entitled because of the recognized importance of this activity, we believe it possible to extend to such companies a service that should enable them to undertake to carry on customer ownership with a minimum of pitfalls in their pathway. With the information that will be available we shall be in a position to advise with member companies in the light of the experience of other companies on many of the problems of the activity. Because of the widespread direct and indirect effects of customer ownership, every precaution should be taken by its proponents to safeguard alike the interest of the stockholders and the company and to the end that the movement may be properly understood by the public generally."

S. E. Skelly

Speakers at Annual Convention

In addition to the preparation of a report to be rendered to the American Gas Association at its annual convention, the committee plans to secure a speaker of authority on financial subjects to address the convention. It also will prepare a booth for the distribution of information concerning customer ownership and the display of advertising matter used by various companies. Among other things the committee will undertake to further the interest of the association by assisting in the preparation of a film depicting the history and status of the gas industry in its true light to employees, customers and prospective stockholders.

* * *

Proceedings of National Assn. of Railroad & Utilities Commissioners to be Issued

The 1925 Proceedings of the National Association of Railroad and Utilities Commissioners, which will cover the Washington Convention which was held last October, will shortly be issued. It is to be pointed out that one feature of particular interest to the gas industry was the adoption at that convention of a simplified classification of accounts for the smaller gas companies, doing a business of $50,000 a year or less. This classification is based on the uniform classification for the large companies approved by the National Association in 1922. It is printed in pamphlet form.

The uniform form of an annual report for gas and electric companies is also available in loose-leaf shape for actual use by the utilities.

Southwestern Association Plans Fine Program

The following is the program of the Southwestern Public Service Association, at Galveston, Texas, April 13-16, 1926.

The general program will be as follows:

"Progress in Electric Service." J. E. Davidson, President, National Electric Light Association.

"The Women's Committee." Miss Isabelle Davie, Secretary, Women's Committee, N. E. L. A., New York.

"City Traffic and Its Best Servant." F. R. Coates, President, American Electric Railway Association.

"The Fuel for Now—Gas." H. C. Abell, President, American Gas Association.

"Public Utility Financing." Ralph S. Child, Bonbright & Company, New York.

"Building Public Confidence." P. L. Thomson, Publicity Mgr., Western Electric Company, New York.

"Impractical Theories and Panaceas." Henry Mace Payne, Consulting Engineer, American Mining Congress, Washington, D. C.

"The Facts about Rural Electrification." H. C. Couch, President, Arkansas Light & Power Company, Pine Bluff, Ark.

J. W. Carpenter, Vice-President and General Manager, Texas Power & Light Co., Dallas, Texas.

L. P. Sweatt, Manager, Mississippi Power Company, Gulfport, Miss.

A. G. Curtis, Vice-President, Southwestern Gas & Electric Company, Shreveport, La.

O. A. Jennings, Mgr., Commercial Dept., Oklahoma Gas & Electric Co., Oklahoma City.

"Public Ownership." Capt. James A. Baker, President, Houston Gas & Fuel Company, Houston, Texas.

"Contacts with the Consumer Public." F. M. Hoag, General Manager, Southwestern Bell Telephone Company, Dallas.

"Telling the Utility Story." W. H. Onken, Jr., Electrical World, New York.

"A Night at the News Desk." Walter M. Ebell, Editor, Sentinel Record, Hot Springs, Ark.

Industrial and Public Relations under several divisions:

"Industrial and Public Relations." M. H. Aylesworth, Managing Director, National Electric Light Association, New York.

"Pensions and Group Insurance." H. B. Flowers, President, New Orleans Public Service, Inc., New Orleans.

"Foremen Training." W. W. Holden, Mgr. Traction Department, San Antonio Public Service Co., San Antonio.

"Employees' Clubs." F. C. Armbruster, Supt. Gas, Southwestern Gas & Electric Co., Shreveport, La.

"Safety Work." C. J. Rutland, Texas Power & Light Co., Dallas.

GAS SECTION

Wednesday Afternoon, April 14th
F. C. Armbruster, Presiding

"Improving Construction for Distribution System." Discussion led by A. F. Bassett, Chemist, Manhattan Rubber Co.; H. Y. Carson, Research Engr., American Cast Iron Pipe Co., Birmingham; P. E. Nicholls, Vice-President and General Mgr., Galveston Gas Co., Galveston; F. C. Armbruster, Supt. Gas, Southwestern Gas & Electric Co., Shreveport; and others.

1. Use of Rubber Rings in B & S Joints.
   a. History of Rubber Com-Compounds.
   b. Physical Properties of Rubber Compounds.
   c. Description of Tests with Rubber Rings.
   d. How long will rubber last in B & S Joints.
2. Use of Bronze Welding Cast Iron Pipe.
   a. Information accumulated to date.
   b. Practical application in the field.
   c. Specifying Foundry Air Test.
3. Use of Jute, Hemp and Flax in B & S Joints.
   a. Bureau of Standards Test for Jute.
   b. Problem of "Wet" and "Dry" Gas.
   c. Braided Jute vs. Loose Jute.
   d. How long will Jute last in B & S Joints.
4. Use of small diameter cast iron pipe for house services.
   a. Two main system vs. one main system of distribution.
   b. Loop System.

"Combatting Gas Leakage in Natural Gas Systems." Discussion led by R. M. Redding, Supt. Dallas Gas Co., Dallas.

Thursday Morning, April 15th
E. N. Avegno, Presiding

"Gas Refrigeration." S. L. Drumm, Industrial Engr., New Orleans Public Service, Inc., New Orleans. Discussion led by H. E. Danner, Commercial Mgr., Houston Gas & Fuel Co., Houston.

"Sales—A National Problem and Its Answer." R. J. Canniff, Chairman Commercial Section, American Gas Association.

"Increasing Gas Sales with Water Heater Installation." C. H. Lecey, Pittsburg Water Heater Company, New Orleans.

"House Heating with Gas." Discussion led by H. P. Carroll, Asst. Mgr., Southwestern Gas & Electric Co., Beaumont.

Election of Chairman.

Thursday Afternoon, April 15th

Gas Section will meet with the Public Relations Section. (Ball room.)

* * *

Waterbury Gas Merger Approved

Waterbury, Conn.—Approval of the plan to merge the Watertown Gas Company with the Waterbury Gas Light Company has been given by the Public Utilities Commission following a hearing. The amount involved in the transfer of the rights, property and franchise of the Watertown company is approximately $64,800. Benjamin I. Spock, lawyer, of New Haven, represented both companies at the hearing.

Edwin H. Williams, vice-president and general manager of both companies, which have been under the same control for several years, spoke in favor of the project. There was no opposition. The Watertown Gas Company has bought the gas it distributed from the Waterbury concern since it was established in 1911.

Empire State Commercial Men to Meet in June

The annual meeting of the commercial section of the Empire State Gas & Electric Assn. will be held on Thursday and Friday, June 24th and 25th at the Black River Valley Club at Watertown, N. Y. An interesting program has been arranged for this meeting, the details of which will appear later.

Southern Railway & Light Co. Granted Gas Franchise

Natchez, Miss.—On March 26th, the Southern Railway & Light Company was granted a twenty-five-year franchise for the distribution of gas. Construction will begin immediately on the laying of ten miles of cast iron pipe in the city involving an expenditure of $90,000 and will be completed within four or five months.

Present indication are that natural gas will be available for distribution within eight to twelve months.

* * *

High School Girls Visit Bridgeton Gas Works

Bridgeton, N. J.—Thirty-five bright-eyed young ladies, composing a section of the home chemistry class of the Bridgeton High School, recently paid a visit of inspection to the plant of the Bridgeton Gas Light Company.

The class was in charge of Miss Simpson, and they assembled at the gas plant, where they were met by Jacob B. Jones, the general manager, and his assistant, Leo DuBois, Jr.

The visit through the plant was of exceptional interest, as the history of gas production was traced from the time that the coal comes on the trestle, until it is stored in the big gas holders, and finally released when the quarter is dropped in the meter.

These visits to industrial plants are a part of the modern day system of education and once each year a class from the high school makes a pilgrimage to the plant of the Bridgeton Gas Light Company, where they are always most pleasantly received and made to feel quite welcome.

University of Colorado to Give Extension Course on Public Utilities

Boulder, Colo.—Rapid and ever-increasing expansion in the public utility field is creating a consequent demand for men and women who possess something more than "rank and file" ability and learning.

To meet this demand the University of Colorado, with the close co-operation and advice of the Rocky Mountain Committee on Public Utility Information, is giving a series of courses in Public Utility Economics, for the purpose of making it possible for men and women to thoroughly ground themselves in the fundamentals of the Public Utility Business. There are many executive and supervisory positions awaiting those persons who are fitted by training and experience to enter them.

Courses of Study

Almost every phase of the utility business, aside from manual employments, is covered under nine major subjects. Each subject is made into a course of twelve to eighteen assignments or lessons.

The first course is "The Elements of Public Utility Economics." There are eighteen assignments in this course. It embraces many of the fundamentals that are treated in detail in the following courses. It is intended that the first subject shall afford students a comprehensive view of the entire utility business touching points that would require years for the average utility employee to become familiar with in the ordinary course of his or her employment.

Utah Gas & Coke Co. Plans Essay Contest

Winner to Go to Atlantic City Convention

An opportunity is at hand for every employe of the Utah Gas & Coke Company. An essay contest for all members of the Middle West Utilities Company and operating subsidiaries, has been announced by the public relations department. The winning man and woman will receive as a prize, attendance at either the American Gas Association Convention at Atlantic City or the N. E. L. A. Convention, as they choose.

In order to interest every employe, George R. Horning has offered a further prize of ten dollars ($10.00) and two books to Utah Gas and Coke Company members. The man and woman winning first place locally will each receive five dollars ($5.00). The man and woman winning second place will each receive a suitable autographed volume from Mr. Horning.

The Women's Committee state one of their members will win the grand prize and have challenged the men to send a representative to enjoy the trip and convention with her.

The subject will be: "What the Public Service Business Is to Its Employes, to Its Investors, to the Community and to the Nation." The contest closes April 10th. The two best papers must be in the Chicago office by April 20th, for the final judging. The two winners will be announced on May 1st.

* * *

Marysville to Get Gas-making Plant

Sacramento, Calif. — Announcement has been made of plans of the Pacific Gas and Electric Company for the erection within a short time of a $500,000 gas-generating plant at Marysville to serve Marysville and adjoining territory. This project is in addition to the $1,500,000 improvement campaign announced recently by the company for Northern California and the Sacramento Valley. The plant is to be arranged to serve 10,000 consumers immediately.

Own Your Home Show in Chicago

Chicago.—National interests engaged in the manufacture of building materials, equipment and other products used in the construction field have a tendency to overlook the great potential market in the home building field according to Robert H. Sexton, Housing Expert and Managing Director of the Sixth Annual "Own Your Home" Exposition held in Chicago.

"It has been my observation over a period of many years that great efforts are made by national organizations selling products used in the building field to secure gigantic building projects, and that the home building field is classed as a side issue," said Mr. Sexton, speaking before a meeting of exhibitors held last night. "Yet thousands of homes are built to one 'Woolworth' or 'Wrigley' building. Homes are being built all the time —every day, sometimes at the rate of one every hour in the day—but the construction of large projects is sporadic. It is true that huge sums are expended on each large project— the towering office building and apartment house—but only one manufacturer in each line can get the business.

"If, for example, eight or ten plumbing firms bid for a certain big structure, only one will be accepted and the others have been concentrating weeks and months on the project in vain. In the meantime, hundreds of homes have been built that might have provided business for all the bidding interests.

"Naturally, it takes a good many homes to aggregate the volume of business the manufacturer secures from the big building, if he is lucky, but home building will keep his factory going while he is waiting for the large project and provide him with some profit in the event he loses it.

"The architectural profession has come to recognize this principle and has developed a group service for the small home builder, making available expert small house plans and specifications covering standard materials and equipment.

"Conditions throughout the country would be steadied if manufacturers would pay more attention to the home building field. Factories would be kept working; men employed and homes provided for rent payers.

"Moreover, there is rarely a financial slump in the home building market; while the construction of large buildings is susceptible to financial fluctuations. There is no better security in the world than the owned home. The home owner seldom fails. He will make every sacrifice to meet the payments on his home and, the house, when completed, is rented for life."

* * *

C. J. De Mers Resigns Position

Huntsville, Ala.—C. J. De Mers, formerly general manager of the Huntsville Gas Co., has resigned his position with that concern and accepted the secretaryship of the Huntsville Chamber of Commerce.

Mr. De Mers was manager of the gas property for six years, going to Huntsville from Freehold, N. J.

* * *

William V. Garrison Returns to Consolidated Gas Co.

New York City.—William V. Garrison returns to the Consolidated Gas Company of New York after an absence of two years. Mr. Garrison had received his preliminary heating experience with the American Radiator Company.

At the outbreak of the war Mr. Garrison was on detached service supervising the construction and installation of heating equipment and hot water supply in various camps of the U. S. Army.

From 1919 to 1924 he was with the Consolidated Gas Company of New York, specializing in house heating and water heating problems.

During the past two years Mr. Garrison was acting as consulting engineer in oil burner equipment for several of the large building contractors in the vicinity.

Mr. Garrison returns to the Consolidated Gas Company now in his old capacity of specializing in house heating and water heating problems.

Atlantic City Convention at Young's Pier

The Atlantic City Convention of the American Gas Association will be held this year at **Young's Pier** instead of the Steel Pier. The change has been made because there is considerable more space available both for meeting places and exhibits at Young's Pier than there is at Steel Pier. Fifty per cent in space is gained and greater facilities are rendered available for entertainment features. It is aimed to make the coming Convention and Exhibition a bigger and better affair than ever before in the history of the American gas industry.

Standard Gas Co. in Huge Merger

Acquires Standard Power—Pennsylvania and California Utilities Unite

New York City.—The Standard Gas and Electric Company has acquired control of the Standard Power and Light Corporation, rounding out one of the country's largest utilities systems co-ordinated in one company and under single management.

Standard Power and Light, which for some time has been controlled jointly by Ladenburg, Thalmann & Co. and Standard Gas and Electric, in turn controls utility organizations which in 1925 had gross earnings of more than $70,000,000. These units serve Pittsburgh and surrounding territory. Three-quarters of the street railway business of San Francisco also is involved.

The corporations included in the merger, directly or indirectly, are the United Railways Investment Company, California Railway and Power Company, Market Street Railway Company, Pittsburgh Utilities Corporation, Philadelphia Company, Duquesne Light Company, Pittsburgh Railways Company and the Equitable Gas Company.

Majority control in all these companies is represented with the exception of the Market Street Railway Company, where 40 per cent of the voting control is owned.

H. M. Byllesby & Co., investment bankers for Standard Gas and Electric Company, announce offers will be made shortly to minority stockholders of the United Railways Investment Company, California Railway and Power Company, Pittsburgh Utilities Corporation and the Philadelphia Company to exchange their stock for securities of the Standard Gas and Electric Company in order to acquire the minority stock of these companies for its subsidiary, Standard Power and Light. Ladenburg, Thalmann & Co. will retain a substantial interest in Standard Power and Light, and Moritz Rosenthal, of Ladenburg, Thalmann & Co., will remain chairman of Standard Power and Light.

The properties now embraced by Standard Gas and Electric had gross earnings of more than $137,000,000 in 1925 and total assets of more than $750,000,000. They serve 1,200 communities in nineteen states and directly serve approximately 1,400,000 customers.

* * *

Arthur M. Apmann With Consolidated Gas Co.

New York.—Arthur M. Apmann is now associated with the Department of Utilization of the Consolidated Gas Co. of New York. He has had four year's service with the Surface Combustion Company in the testing, installation, sales and publicity work connected with industrial furnace applications. He has also had two years' experience with the Joseph Dixon Crucible Co.

During the war he was engaged in the research and development of furnaces for the manufacture of gas mask carbon.

Mr. Apmann has served as subchairman of the Progress Committee of the American Gas Association for the past two years and as a member of the Committee on the Education of Industrial Salesmen.

* * *

John F. Barnard Moves to Suffern, N. Y.

Suffern, N. Y.—John F. Barnard, president of the Goshen Illuminating Co. and of the Suffern Gas Co. has moved to Suffern, N. Y., in order to be on the scene of operation in that city as he intends to devote a great portion of his time to the development of this plant. It will be recalled that the Suffern Gas Co. was operated by a receiver for a number of years and was sold last August. This gas plant has been entirely rebuilt and has been converted from a water gas plant to a coal gas plant. Two and a half miles of pipe have been purchased for the beginning of the extensions of the mains. The superintendent of the Suffern Gas Co. plant is Alvin Deyo, who has been in the employ of the Goshen Illuminating Co. for some time past.

Changes in United Light & Power Co. Organization

Brooklyn, N. Y.—Frank T. Hulswit, formerly president of the United Light and Power Company and one of its subsidiaries, the Brooklyn Borough Gas Company, resigned from the board of directors of the latter company at the annual meeting of stockholders. He was succeeded by Richard Schadellee, who also succeeded him as president of United Light and Power when the recent break in the stock market caused a slump of close to 100 points in United Light stock on the Curb.

Other new representatives of United Light were elected to the board of Brooklyn Borough Gas yesterday. They were C. N. Chubb and H. L. Heinke.

Stockholders also elected Miss Mary Dillon, H. J. Dillon, H. F. Steers and M. E. Armstrong, of the operating personnel of the Brooklyn Borough Gas Company, to the board of directors.

At the meeting of the board of directors in the near future it is expected that Richard Schadellee will succeed Mr. Hulswit as president of the company also.

Michigan Gas Men Plan 1926 Meeting

The 1926 Convention of the Michigan Gas Association will be held at the Grand Hotel, Mackinac Island, on June 24th, 25th and 26th. In many ways this should prove to be even a more successful Convention than the one held there last summer. For one thing, the hotel has been greatly improved throughout and the service will be much better, although very few can justly complain about last year's service. Moreover, it will probably be possible for our members to obtain reservations for the night before the Convention, thus permitting us to get started earlier and affording a somewhat longer stay on the Island. The hotel will open one week previous to the dates of our Convention, so that everything will be in full operation by the time we come. Full details will be announced later on, and in the meantime both your Executive Committee and the Entertainment Committee are busy on preparing attractive programs.

Accounting Men of the Empire State Gas & Elec. Assn. to Meet in April

A general meeting of the accounting section of the Empire State Gas & Elec. Assn. will be held in the Hotel Syracuse, Wednesday, April 21st. At this meeting, consideration will be given the matter of forming an accounting section, and if favorable action is taken, officers will be duly elected for the ensuing year.

New Deland Gas Plant Planned

Northern Syndicate Will Build $500,000 System

Deland, Fla. — Expenditure of $500,000 for the construction of a gas plant to be finished and in operation by January 1, is the plan of the New York syndicate which purchased control of the Deland Gas Company.

A. H. Miller and M. P. McGrath, representing the purchasers, closed a deal for 263 shares of the company's stock at an announced price of $50 per share. Extension of the lines to Orange City before the end of the year is a feature of the plan.

The transaction was made at a meeting of the board of directors of the old company and the syndicate representatives. The company retiring from the utility field owns a 300-foot frontage on the railroad tracks that is not included in the franchise. Pipe, franchise, materials and every other property of the company, except the old site, was included in the deal.

The Deland Gas Company was formed two years ago and has a 30-year franchise from the city. This franchise automatically goes to the new company.

Officials of the old company were V. W. Gould, president; L. M. Patterson, vice-president; T. B. Stewart, secretary; G. W. Fisher, treasurer.

F. C. Hill Joins U. G. I. Co.

Charleston, S. C.—Fred C. Hill, who has been the superintendent of the gas department of the Charleston Consolidated Railway and Lighting Company since July 1, 1923, has accepted a position with the United Gas Improvement Company of Philadelphia, where he will be attached to the gas engineering staff. Stuart Cooper, vice-president and manager, states that while his company regrets very much losing the services of Mr. Hill, who has done excellent work since coming to Charleston, he is very glad that his ability has been recognized, and that new opportunities have come to him. Mr. Hill will be succeeded by George H. Park, who comes to Charleston from Reading, Pa., where he was connected with the Consumers Gas Company of that city. He has had considerable experience in the gas engineering field, having been with the Savannah Gas Company prior to going to Reading. Mr. Park, who is a native of Tennessee, is very glad to be in the South again.

On Wednesday evening the department heads and others of the Consolidated company gave a farewell dinner to Mr. Hill at the Francis Marion Hotel. As toastmaster, Horatio Bigelow, superintendent of the railway, called upon every one present to bid Mr. Hill goodbye and wish him success in his new field. Mr. Hill responded happily to the remarks of his associates, stated that he had thoroughly enjoyed his stay in Charleston and had made many friends here. W. P. Ryan of the commercial department gave several recitations that added much to the enjoyment of the occasion.

Those attending the dinner were Stuart Cooper, F. C. Hill, J. P. Connelly, C. J. Bendt, J. O. Moisson, J. D. Doscher, C. B. McCleary, C. P. Jensen, E. L. Godschalk, J. W. Ruff, Kingsley Patterson, John Gerson, H. C. Glenn, H. M. Pace, E. G. Hastings, Horatio Bigelow, W. J. Connolly, J. E. Wasson and George H. Park.

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Gas Meeters Meet and Discuss New Business Campaign

Bridgeton, N. J. — The Gas Meeters of Bridgeton held a busy session on Wednesday evening at the offices of the Bridgeton Gas Light Company. Frank Sharp presided at the meeting, which resolved itself into a new business and sales conference, in anticipation of the spring campaign that is to be waged by the employing company.

General Manager Jones has entered into a contract with the manufacturers of two high class household appliances, together with a group of other gas distributing companies in other cities to take on several carloads of appliances and push their sales through the spring months.

By entering into a group purchase the appliances are bought cheap enough to go on the several markets at a minimum price to the consumer. The Bridgeton Gas Light Company has laid all its plans to make the gas consuming public a splendid proposition on automatic heaters and white enamel and gray kitchen ranges. Old appliances will be taken in at a more or less uniform price and long time will be given to complete the purchase of either or both appliances.

The company has a well established policy of rendering service and is thoroughly convinced that the best service is possible with new appliances which have stood the rigid tests of experts. It has adopted the spring campaign policy on a liberal basis for the sole purpose of keeping its service up to the highest standards.

Announcements will soon be made of the whole plan and employees will handle the proposition entirely within the present organization.

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A Municipal Ownership Bill in Albany

Albany, N. Y.—Under the provisions of a bill introduced in the Senate by John A. Hastings, Democrat, of Brooklyn, entitled "The New York City Public Utility Act," the City of New York is given power to construct, own, operate and regulate gas plants, electric plants, for lighting, heating or power, conduit lines, steam plants, telephone lines and plants and telegraph lines. Referred to Public Service Committee.

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Bronx Gas & Electric Co. Changes Par Value of Stock

Albany, N. Y.—Bronx Gas and Electric Company, Westchester, N. Y., has filed a certificate in the office of the Secretary of State, changing the par value of its shares from 5,000 shares $100 par value to 75,000 shares non par value. Shearman and Sterling, 65 Wall street, New York City, are attorneys for corporation.